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Presentation of defence expenditures and their distribution for defence purposes

I. Introduction

Collection and presentation of data on defence expenditures would provide a better basis for the assessment by governments of short- and long-term trends in defence efforts and their consequences for the military balance. Such openness, which does not exist today in many States, would increase mutual confidence among States and reduce the risk for arms race by suspicion or misunderstanding.

This paper includes an analysis of what economic data would be of interest for that purpose and, therefore, should be made generally available. As an example, such data concerning the defenoe expenditures of Sweden are included in the appendix.

II. Basic requirement - the definition of defence expenditure

Information concerning defence expenditure is contained in the official public accounts of central governments. States differ, however, in their definitions of defence expenditure, and information concerning their methods of classification is commonly not available. Some expenditures which would be considered as military may be excluded from the official data. In addition, there are often differences within States in the basis of pricing of military output as compared with that of the output of the rest of the economy. Furthermore, different States have different economic structures and patterns of prices.

For these reasons official statistics on defence expenditure when used to increase mutual confidence among States would greatly benefit from a common definition of the concept and an agreement to supply information concerning the methods of classification used in each State.

It may not be easy to define the concept in exact terms but the official statistics on defence expenditure normally include:

- pay and allowances to military personnel
- pay to civilian personnel
- Operations and maintenance
- procurement
- research and development
- construction

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Furthermore in many States the following expenditures are also considered as defence expenditure;

- military aid
- civil defence
- pensions to retired personnel
- para-military forces
- parts of or total expenditure for certain activities that are acknowledged as having mixed civil/military functions, e.g., space research, atomic energy.

III. Matters to be covered by the presentation of statistics on defence expenditure

1. The level and trend of defence expenditure over the past decade according to official defence budget and including defence expenditure incurred outside the budget.

Here it is essential to supply information as to what expenditures are considered as defence expenditure in various States.

2. The same as III.1 but in relation to the level and trend of GNP for the State.

3. The distribution and break-down of military expenditure in terms of procurement, personnel, research and development, capital investment and other.

In order to use trends of defence expenditure as information about a State's military potential, it is necessary to analyse the distribution of the expenditures in the terms listed above. This distribution can be used in an analysis of which basic decisions concerning military resource allocation and which decisions on principles of defence production and organization are made in different States. The distribution can also be of value when considering how much of a State's defence resources is consumed in the short run, and how much represents investments giving returns in terms of military potential in the long run. For the latter purpose the expenditures can be distributed into:

- Expenditures used to maintain present defence resources in the short run.
- Expenditures used to renew old equipment and add new equipment.
- Expenditures used for research and development giving returns in the long run.

4. The level and trend of employment of manpower within the defence organization and in defence related activities (e.g. defence related industry).

Statistics on manpower employed by the defence authorities, and statistics on the number of employees in other sectors of a State's economy but still engaged in production for the defence, give valuable information about both military potential and the economic consequences of the arms race for a State. Statistics on the proportion used for defence production for export is also of value. Statistics on the proportion of a State's total labour force which is used for defence purposes is often considered as an indicator of the influence of defence activities on the rate of growth of a State's economy.

5. The level and trend of manpower and financial resources devoted to research and development for defence purposes as a proportion of the State's total expenditure for research and development.

A State's military potential in the long run is to a large extent based on the priority given to research and development for defence purposes. Statistics on this matter should cover the use of human and financial resources for defence research at both government authorities and government financed defence research in industry.

6. Cost growth within the defence sector.

In many States the production for defence purposes shows a cost disadvantage compared to the economy as a whole. There are also indicators of differences in cost growth between States. The relative military potential is strongly influenced by the relative trend in prices of goods and services used for military purposes and the relative cost trend of production within the defence authorities.

7. The level, trend and structure of defence-related imports and exports and provided or received military aid.

The geographical spread of the arms race is of essential interest in measuring military potential. The possibility of valuing the flow of weapons, military equipment and other defence-related goods and to analyse its geographic pattern is of main importance to further developments in arms control and disarmament. Analysis of trends in the arms trade, in military aid and of supply and import policies demand statistics which could be supplied by the States.

Estimating the amount of arms supply in cases of no or partial payment only is of course a difficult problem even if the supply is materially specified. This is also true in cases of joint or licensed production programmes. Accuracy ambitions, therefore, have to be limited.

Information about defence-related imports and exports and military aid is also necessary in order to pay attention to differences in the pattern of defence production between the industrialized and the less industrialized countries and between allies of military blocs. Imports and exports of the technologically advanced weapons and military equipment characterized by high degrees of technical know-how have expanded quickly and the build-up of stocks of weapons in less industrialized countries is one of the new features. Statistics on arms trade and military aid also give valuable information about the military posture of a State. The arms trade influences economic development in the recipient regions through the diversion of resources for purchase and maintenance of weapons and military equipment. The economic structure of a recipient country also tends to be affected by the usually close relations established between suppliers and recipients.

Statistics on arms trade and military aid to be supplied should measure the full monetary value of the flow of military goods. The monetary value may not correspond to actual prices paid, which vary considerably according to different pricing methods, the degree of aid and the terms involved in each individual transaction. In this matter it is also necessary to deal with the measuring problems connected with joint and licensed production of weapons.

IV. Regularity of information

It would seem desirable if information on the matters discussed in this paper could be provided by States on an annual basis.

APPENDIX

Example of a presentation of defence expenditures, their distribution for different purposes and other matters discussed in the working document

The following should be seen as an example of information that could be supplied on the matters discussed in the working document. The figures are taken from official Swedish statistics.

II. The definition of Swedish defence expenditures

The "total defence" of Sweden consists of four component parts: the "military defence", the "civil defence", the "economic defence" and the "psychological defence".

The Swedish concept of "total defence" thus has a very broad significance. It includes not only military defence but also measures to protect the population from war damages, to ensure supplies of goods and services, and to maintain the will to defend and a spirit of resistance. Even such functions as medical care, social welfare, police system, and communications as well as other social activities must be adapted during war according to the pattern of the total defence effort.

Preparations for defence must make it possible not only to meet a military invasion and other forms of military attack but also to meet such events as isolation and political and economic threats.

The components of military expenditures are: payment and allowances to military personnel, civilian personnel and conscripts, expenditures for operations and maintenance, expenditures for procurement of munition, research and development expenditures and expenditures for construction of buildings and fortifications.

Sweden has no military expenditure abroad except for advances for United Nations troops, neither does Sweden receive military aid from abroad.

Real resources used for military ends are, except for expenditures for construction of buildings and fortifications, classified in the national accounts as consumption. The reason for this is that the use of resources for these ends is not presumed to add to the productive capital stock. This rule of classification of expenditures should be noticed when reading table III.3.

III.1 The level and trend of Swedish defence expenditures over the past decade

a. The "total defence" expenditures 1963/64 - 1973/74
Current prices. Millions of Swedish crowns 1/

1963/64	4 325
1964/65	4 737
1965/66	5 309
1966/67	5 493
1967/68	5 595
1968/69	5 804
1969/70	6 121
1970/71	6 458
1971/72	6 950
1972/73	7 404
1973/74	7 919

b. The "military defence" expenditures 1963/64 - 1973/74
Current prices. Millions of Swedish crowns 1/ 2/

1963/64	3 848
1964/65	4 109
1965/66	4 759
1966/67	4 733
1967/68	4 862
1968/69	4 987
1969/70	5 330
1970/71	5 810
1971/72	6 249
1972/73	6 952
1973/74	7 382

1/ Actual results for the fiscal years 1963/64 to 1971/72 calculated results for the fiscal years 1972/73 and 1973/74.

2/ Some social costs, earlier excluded, are included for the fiscal years 1972/73 and 1973/74.

c. The "military defence" expenditures 1963/64 - 1973/74
Constant price figures according to the Swedish "net price index", 1971/72 prices. Millions of Swedish crowns 1/ 2/ 3/

1963/64	5 251
1964/65	5 354
1965/66	5 954
1966/67	5 653
1967/68	5 699
1968/69	5 768
1969/70	5 864
1970/71	6 080
1971/72	6 249
1972/73	6 685
1973/74	6 823

d. The "civil defence" expenditures 1963/64 - 1973/74
Current prices. Millions of Swedish crowns 1/

1963/64	57.5
1964/65	75.5
1965/66	69.2
1966/67	102.0
1967/68	87.4
1968/69	104.2
1969/70	113.6
1970/71	110.1
1971/72	153.7
1972/73	126.8
1973/74	136.8

1/ Actual results for the fiscal years 1963/64 to 1971/72, calculated results for the fiscal years 1972/73 and 1973/74.

2/ Some social costs, earlier excluded, are included for the fiscal years 1972/73 and 1973/74.

3/ The price corrections, to remove the price increases caused by inflation, for the fiscal years 1972/73 and 1973/74 are based on an assumption of 4 per cent price increases per year.

III.2 The Swedish defence expenditures related to GNP and total public expenditures

a. The "military defence" expenditures as a percentage of the Gross National Product (GNP) to factor costs 1961/62 - 1971/72

1961/62	4.38
1962/63	4.53
1963/64	4.44
1964/65	4.29
1965/66	4.56
1966/67	4.20
1967/68	4.04
1968/69	3.86
1969/70	3.73
1970/71	3.75
1971/72	3.78

b. The "total defence" expenditures as a percentage of the Gross National Product (GNP) to factor costs 1963/64 - 1971/72

1963/64	4.99
1964/65	4.95
1965/66	5.09
1966/67	4.87
1967/68	4.65
1968/69	4.49
1969/70	4.28
1970/71	4.16
1971/72	4.20

c. The "military defence" expenditures as a percentage of total public expenditures (federal budget) 1/

1961/62	17.53
1962/63	17.38
1963/64	17.45
1964/65	15.97
1965/66	16.08
1966/67	14.18
1967/68	13.38
1968/69	12.83
1969/70	12.05
1970/71	12.04
1971/72	11.26
1972/73	11.23
1973/74	11.00

1/ See footnote 2, table III.1.c.

d. The "total defence" expenditures as a percentage of total public expenditures (federal budget).

1963/64	19.62
1964/65	18.41
1965/66	17.94
1966/67	16.46
1967/68	15.39
1968/69	14.93
1969/70	13.84
1970/71	13.38
1971/72	12.52
1972/73	11.96
1973/74	11.80

III.3. The distribution of Swedish military expenditures in terms of procurement, personnel, research and development, capital investment and other purposes 1962/63-1973/74. Current prices. Millions of Swedish crowns and percentage*

	Procurement		Personnel		Research and development		Capital investment		Other expenditure		Total military expenditure
3/ 1976/77											
3/ 1975/76											
3/ 1974/75											
2/ 1973/74	1 990	27.0%	2 425	32.9%	646	8.8%	403	5.5%	1 918	26.0%	7 382
2/ 1972/73	1 892	27.2%	2 248	32.3%	653	9.4%	402	5.8%	1 757	25.3%	6 952
1/ 1971/72	1 968	30.0%	1 801	27.5%	449	6.9%	311	4.7%	2 024	31.0%	6 553
1/ 1970/71	1 746	29.4%	1 602	26.9%	351	5.9%	287	4.8%	1 959	32.4%	5 945
1/ 1969/70	1 620	28.0%	1 550	26.7%	370	6.3%	320	5.5%	1 740	30.0%	5 797
1/ 1968/69	1 390	26.0%	1 460	27.2%	460	8.6%	305	5.7%	1 740	32.5%	5 348
1/ 1967/68	1 450	27.9%	1 280	24.6%	425	8.2%	305	5.9%	1 740	33.5%	5 194
1/ 1966/67	1 520	29.7%	1 260	24.0%	410	8 %	310	6 %	1 640	32 %	5 117
1/ 1965/66	1 430	28.6%	1 300	26.0%	400	8 %	300	6 %	1 550	31 %	5 011
1/ 1964/65	1 240	28.5%	1 120	25.6%	350	8 %	260	6 %	1 400	32 %	4 360
1/ 1963/64	1 280	31.8%	970	23.9%	320	8 %	240	6 %	1 210	30 %	4 042
1/ 1962/63	1 130	30.4%	810	21.7%	300	8 %	220	6 %	1 270	34 %	3 735

1/ For the fiscal years 1962-63 to 1971-72 total costs are actual results in current prices.

2/ For the fiscal years 1972-73 and 1973-74 total costs are calculated results in current prices. The comparatively large changes in values from fiscal year 1971-72 are to a certain extent attributable to a change in statistical methods.

3/ For the fiscal years 1974-75 to 1976-77 the basis for planning is a horizontal cost development in real terms.

* The total figures in this table are not fully consistent with the figures in table III.1.b. due to a different statistical method.

III.4 The level and trend of employment of manpower within the Swedish defence organization and in defence - related activities

The Swedish National Defence is based on general military conscription and so the country has no professional armed forces. This means that in addition to permanently employed personnel, the National Defence utilizes a large number of conscripted personnel for training. Slightly less than one third of defence expenditure covers the costs for permanently employed personnel. The remaining two thirds is used to purchase goods and services from other sectors of the economy. Labour is thus tied up in production for defence purposes.

a. Manpower directly and indirectly employed in production for defence in Sweden for the years 1958, 1964 and 1968

	Number employed in different years			
	1958	1964	1968	1972
By the defence authorities, employees (a)	51,000	51,000	51.000	50,000
Conscripts in military training, man-years (b)	52,000	52,000	52,000	50,000
Employees in other sectors engaged in production for defence (c)	55,000	50,000	48,000	40,000
Total engaged in defence (a+b+c) (d)	158,000	153,000	151,000	140,000
Total labour force (e)	3,510,000	3,680,000	3,700,000	3,860,000
(d) as a percentage of (e)	4.5	4.2	4.1	3.6

It is apparent that the number of conscripts expressed as the number of man-years utilized, has remained rather unchanged during the years shown. This is because the extent of the training is primarily determined by the size of the appropriate age group year after year. Thus utilization of available labour for this purpose is not influenced by the usual economic laws and principles but is more or less exogenously given.

The total volume of goods and services bought by the National Defence from other sectors of the economy increased only insignificantly between 1964 and 1972. It is therefore natural that the numbers employed in production for defence decreased owing to increases in productivity within the delivering sectors.

The number of permanent employees in the National Defence has been rather constant during the entire period. The savings in personnel which rationalization and normal increases in productivity within the National Defence have resulted in, have thus been employed for other purposes within the defence authorities. A certain proportion of the gains in productivity have, however, likely been used to compensate for decreases in the length of the work week.

The last line in the table gives the proportion of the total labour force within Sweden utilized for defence purposes. It should be remembered, though, that defence expenditure includes a large proportion of imported goods and services. Calculations show that about three fourths of the goods and services purchased by the National Defence utilize domestic productive capacity while one fourth utilizes the productive capacities of other countries. These imported goods and services must be paid for, however. It can thus be assumed that about 16,000 persons are employed in production of the goods which must be exported to balance the imports caused by defence expenditure. The proportion of the economy's labour resources utilized for defence production in 1964 in this wider meaning would then increase to about 4.6 per cent. To obtain an approximation for the society's costs for the military defence, the percentages in the last line of the table should thus be increased by 0.4 percentage points.

It should be noticed that both the numbers employed by the defence authorities and the numbers employed in other sectors engaged in production for defence have somewhat decreased since 1968.

b. Manpower directly employed by the defence authorities is apparent from the following table with figures for September 1972 (within parentheses) and for March 1973;

	Military personnel	Civilian-military personnel 1/	Civilian personnel	Total
Armed Forces	(8,537) 8,485	(1,010) 999	(9,796) 9,642	(19,343) 19,126
Naval Forces	(3,599) 3,608	(192) 173	(4,367) 4,312	(8,158) 8,093
Air Forces	(2,261) 2,238	(2,725) 2,706	(5,124) 5,061	(10,110) 10,005
Central and regional staffs	(1,176) 1,190	(202) 206	(2,338) 2,288	(3,716) 3,684
Central agencies and functions	(668) 686	(162) 154	(8,370) 8,299	(9,200) 9,139
Total military defence	(16,241) 16,207	(4,291) 4,238	(29,995) 29,602	(50,527) 50,047
Percentage distribution	(32.1%)	(8.5%)	(59.4%)	(100%)
	32.4%	8.5%	59.1%	100%

1/ Specially educated military personnel, e.g. technicians.

III.5 The level and trend of manpower and financial resources devoted to research and development for defence purposes

It can be estimated that technical and scientific research and development activities in Sweden in 1964 corresponded to about 1.5 per cent of the GNP. Partial studies indicate that this proportion has since increased and that it was 1.7 per cent in 1967.

The level and development of the total human and financial resources devoted to research and the portions devoted to primarily military purposes are apparent from the following tables. The total costs for purchase by the National Defence of specific research and development projects is given in the research statistics (line c). This is, however, not true to the same extent for the other sectors of the economy. Thus it would seem that the statistics overestimate the National Defence's proportion of the total research and development costs.

The data have been collected using surveys from the recipients of research commissions. Such recipients, who have deeper insights into the problem area than the client, do not consider the whole project as research and development. This is an important explanation for the difference between the figures given here and those to be found in table III.3.

a. Financial recourses for research and development. Current prices. Millions of Swedish crowns */

	1963	1964	1965	1966	1967
Total research and development (a)	981	1,013	1,148	1,293	1,513
Defence research at government authorities and institutions (b)	100	100	103	104	103
Government-financed defence research in industry (c)	220	172	180	200	240
Defence research as a percentage of all research, (b) + (c) as a percentage of (a)	32%	27%	25%	24%	23%

b. Human resources for research and development. Number of man-years.

	1963	1964	1965	1966	1967
Total research and development (a)	19,800	21,169	22,068	22,974	23,200
Defence research at government authorities and institutions (b)	2,000	2,079	2,112	2,122	2,100
Government-financed defence research in industry (c)	4,570	3,840	3,515	3,980	3,500
Defence research as a percentage of all research, (b) + (c) as a percentage of (a)	35%	28%	25%	26%	25%

*/ Statistics from more recent years on the matter shown in tables a. and b. are not at present available but can, if necessary, be worked out for future discussions.

As can be seen from the tables, more and more human and financial resources are being devoted to research and development activities. The increase is restricted to research having civilian character. The procurement of munitions has remained at an approximately unchanged volume, over time, and as a result of this it is reasonable that also the absolute volume of the resources devoted to research and development of military character should have remained constant or decreased slightly.

Thus, military research and development in Sweden utilizes a large proportion of the limited supply of qualified researchers and scientists. However, it should be pointed out that the National Defence does not utilize a certain portion of a given number of researchers. The National Defence's demand for researchers has been one of the reasons why education of researchers and scientists has been carried out to the extent which has been the case and that the supply of researchers is as big as it is. The number of research workers used for military research and development has been fairly constant during recent years and so defence research has decreased in proportion to the total research efforts.

III.6 Cost growth within the defence sector.

Like in many other countries the tendency towards rapid increases in personnel costs is observable in Sweden. At the same time investments in new technology have run up ever higher bills. A consequence of increased personnel costs has been for consumption to in some extent increase its share at the expense of investments. However we still spend about one-third of our defence budget on new weapons, research and development and more than 5 per cent on new buildings and fortifications. That puts our investments close to 40 per cent of our defence budget - an internationally high figure.

III. 7 The level, trend and structure of defence-related imports and exports and provided or received military aid. */ **/

a. Estimated values of Swedish imports of military equipment 1/ 1969-1974. Current prices. Millions of Swedish crowns. 2/

1969	230.6
1970	204.1
1971	98.8
1972	173.9
1973	250.2
1974	210.6

1/ Including non-military products consumed/paid by the Swedish defence.

2/ Estimates are made in October each year, except for 1974, where the figure is estimated in March.

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*/ It should be noted that the year-to-year movements in the figures presented in this section often are rather erratic, due to the fact that the figures are affected by dominant import/export-projects.

**/ The figures presented include direct import and export only and no licensing fees. Precise estimates of the latter may be produced.

). Estimated values of Swedish imports of military equipment 1969-1974, distributed on suppliers. Current prices. Millions of Swedish crowns.

Suppliers	1969	1970	1971	1972	1973	1974
Austria	1.2	5.3	2.3	3.4	13.8	7.5
Belgium	-	-	1.2	3.6	6.8	4.0
Canada	-	4.4	5.7	2.6	1.7	2.7
Czechoslovakia	3.0	0.1	-	-	-	
Denmark	1.1	1.7	3.3	3.2	2.3	1.2
Egypt	-	1.7	-	-	-	
Finland	46.1	2.6	1.3	0.5	1.3	1.3
France	27.8	14.4	8.1	8.6	2.2	15.9
FR Germany	10.4	9.8	11.5	32.3	30.8	10.3
Hongkong	-	2.1	0.4	-	0.3	0.5
Italy	18.6	14.6	4.7	6.3	0.4	1.9
Japan	-	-	-	-	25.2	13.1
Kuwait	-	-	-	-	-	5.0
Netherlands	30.2	1.3	2.8	2.2	2.1	11.7
Norway	7.8	3.9	5.2	11.2	18.6	10.1
Poland	-	-	-	0.5	-	
Portugal	-	3.4	-	-	-	
Romania	-	-	-	-	4.1	6.0
Switzerland	1.7	2.9	0.7	1.0	2.0	4.2
United Kingdom	51.1	33.3	32.5	44.9	50.1	40.5
USA	31.6	101.5	19.1	45.2	75.2	64.7
USSR	-	-	-	6.4	12.4	10.0
Venezuela	-	-	-	-	0.9	
Yugoslavia	-	1.1	-	1.8	-	

b. Estimated values of Swedish imports of military equipment 1974, classified by kind of equipment. Current prices. Millions of Swedish crowns.

Electrical and telephone-equipment	83.1
Oil	31.5
Engine-equipment	24.5
Aircraft- and helicopter-equipment	19.5
Missile-equipment	18.5
Vehicle-equipment	13.1
Weapon and ammunition	11.8
Warship-equipment	2.0
Shelter-equipment	1.7
Textile	1.3
Metal	0.7
Bridge-equipment	0.6
Optical equipment	0.5
Other	1.8
Total	210.6

d. Total values of Swedish exports of military equipment 1964-1973. Current prices. Millions of Swedish crowns.

1964	129.1
1965	190.2
1966	141.6
1967	138.8
1968	156.0
1969	159.7
1970	321.8
1971	626.6
1972	359.0
1973	333.7

e. Sweden does not provide any military aid and has no military expenditures abroad except for advances for United Nations troops and neither does Sweden receive any military aid from abroad.